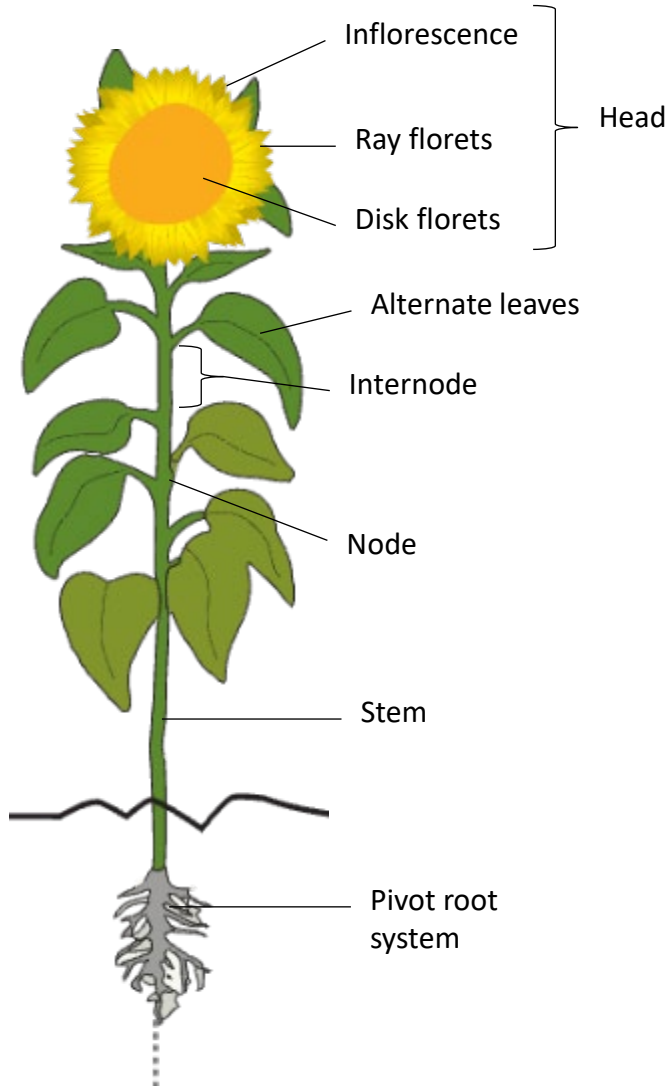




Sunflower Production in the UK



Sunflower plant



SUNFLOWER

Scientific name: *Helianthus annuus*

Order: *Asterales*

Family: *Asteraceae*

Type: Annual plant

Origin: North and Central America

Climate: temperate, continental and some tropical regions

Specificity: positive heliotropism (response towards the direction of the sun)

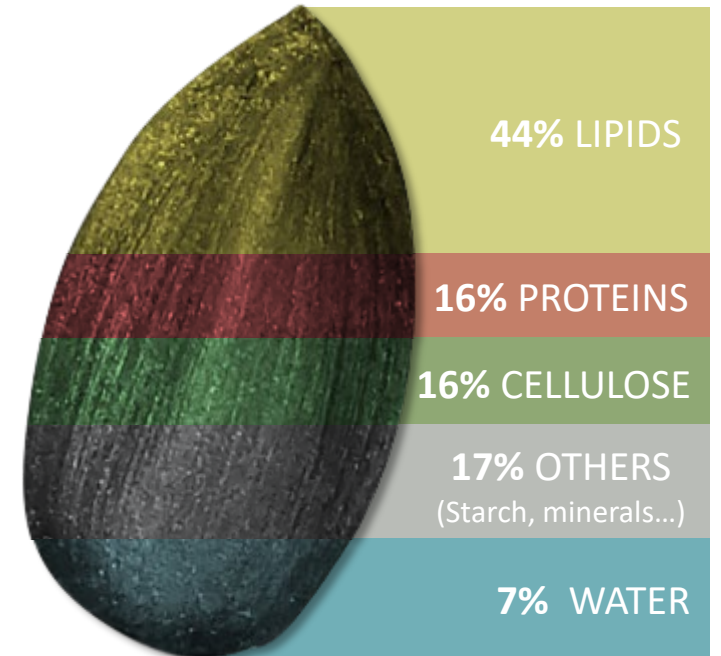


Photo and illustration credit: Limagrains Field Seeds 2024 –Sunflower crop guide



Sunflower crop use

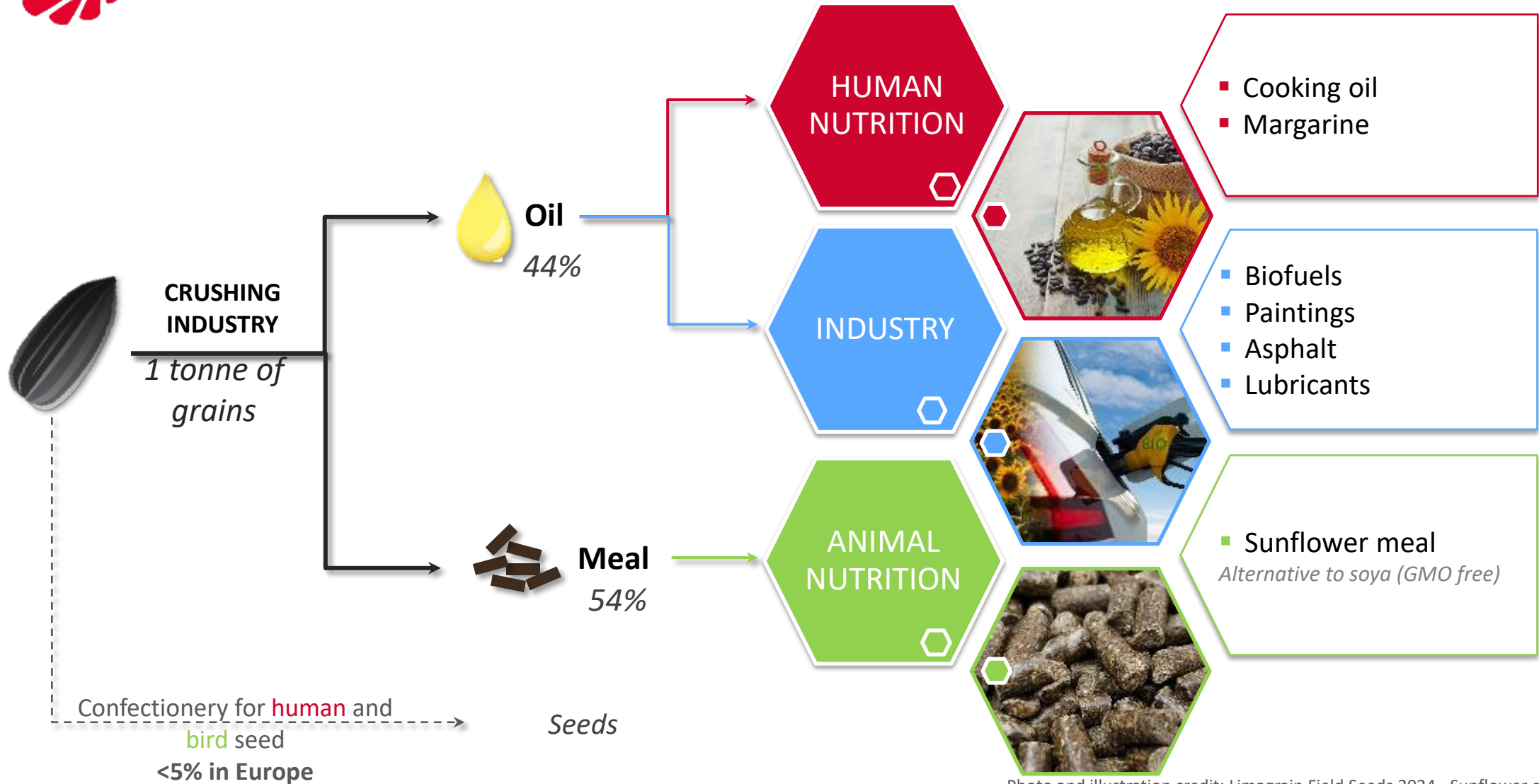


Photo and illustration credit: Limagrain Field Seeds 2024 –Sunflower crop guide



Sunflower use- Oil

Two main variety types of sunflower oil

≈ **90%** of sunflower oil volume produced in Europe

≈ **10%** of sunflower oil volume produced in Europe

	Linoleic acid varieties (mono-insaturated, omega 6)	Oleic acid varieties (poly-insaturated, omega 9) Created in the 2000s
LINOLEIC ACID	62-70 %	7-17 %
OLEIC ACID	15-25 %	75-83 %
PALMITIC ACID	5-8 %	3-5 %
STEARIC ACID	4-6 %	3-5 %
OTHER	1-2 %	1-2 %
FOOD INDUSTRY USES	Used for Margarine production And for domestic use	Industrial food use High resistance to oxidation offering <ul style="list-style-type: none"> • Cooking stability • Longer shelf life for cooked foods • More frying cycles

Photo and illustration credit: Limagrain Field Seeds 2024 –Sunflower crop guide



Sunflower use -meal

Sunflower meal is an important by-product

Sunflower meal
made from

Non-dehulled seed



Conventional meal

28% protein

Conventional sunflower meal

- Pork
- Poultry
- Beef cattle



Dehulled seed



High protein content
sunflower meal
More digestible fibre content

36% protein

High protein content sunflower meal

- Poultry
- Dairy cattle
- Beef cattle

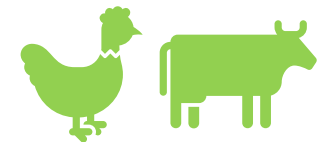


Photo and illustration credit: Limagrains Field Seeds 2024 –Sunflower crop guide



Benefits of sunflower crops



AGRONOMY

- **Tap-root** system improves soil structure
- Breaks up life cycle for cereal diseases and weeds
- Returns a lot of mineral nutrients to the soil
- **Good tolerance** of water stress
- **Crop rotation**

- Main **melliferous** crop
- **Win-win partnership** between insects and sunflower: insect visits promote pollen transfer, improving grain production and oil content.

BIODIVERSITY



ECONOMICAL

- Requires **low inputs**
- Enables the production of **diversified oil types** with a **good level** of content, as well as a **good protein content**, accessible to industrial units.

- **Continuous genetic progress**: genetic diversity and genetic gain
→ Range of varieties of different oil profile (oleic and linoleic mainly) **adapted** to many **pedoclimatic contexts**.

GENETIC

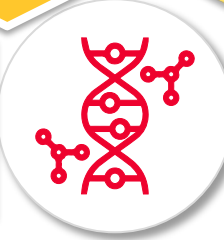


Photo and illustration credit: Limagrains Field Seeds 2024 –Sunflower crop guide



Sunflower crop in the UK

- Sunflower as a crop is already grown in the UK and have been for several years
- They are mostly grown for cut flowers or as part of bird feed seed mixtures
- There are growers out there focused on combining sunflowers for grain, with most of it going to the bird feeding market





UK Sunflower Market

Estimated for 2024

- Market size for combining –estimated at 400 ha
- Market size for cut flowers-estimated at 800 ha
- Imports at 60 000 tonnes currently- for bird feed market
- Sunflower edible oil market share in the UK is 16% (OSR edible oil accounts for 40% and olive oil 3%)
 - With number of imports and average yields of 2 tonnes per hectare, the area grown projections could be up to 30 000 hectares- we just need to figure out how to best grow it!

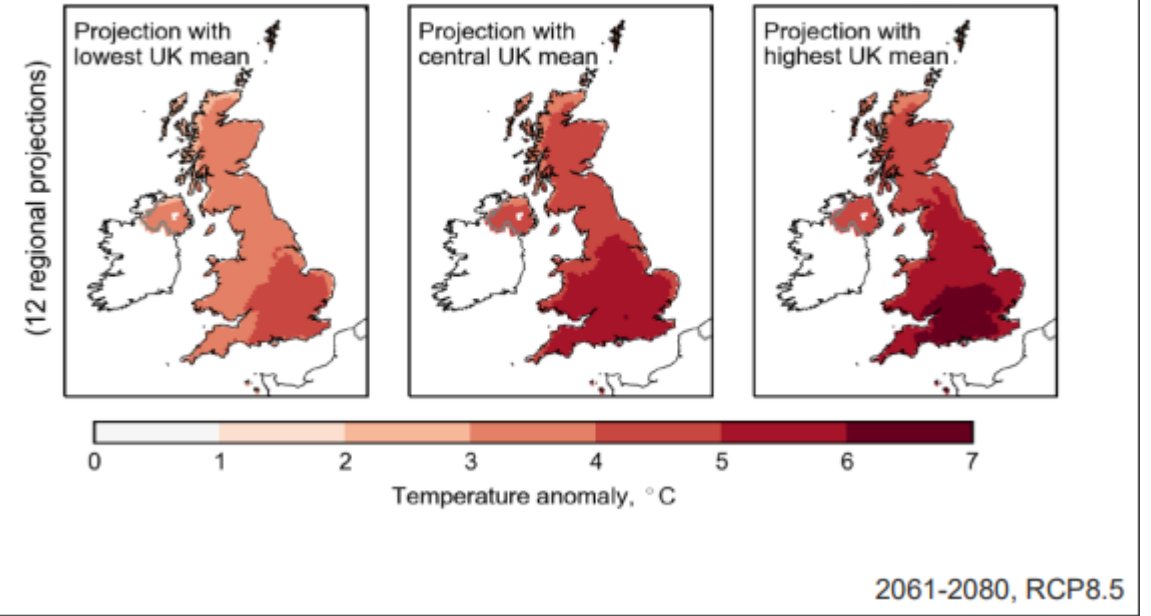




Sunflower crop in the UK

Background – Climate Change

- By 2070 UK average temperature rises could range between 1.3 °C to 5.1 °C in summer, and 0.6 °C to 3.8 °C in winter
- These rises will make most of the UK suitable for growing sunflowers on a shorter period (similar to main, S and SE of Europe present day)



Source: metoffice.gov.uk



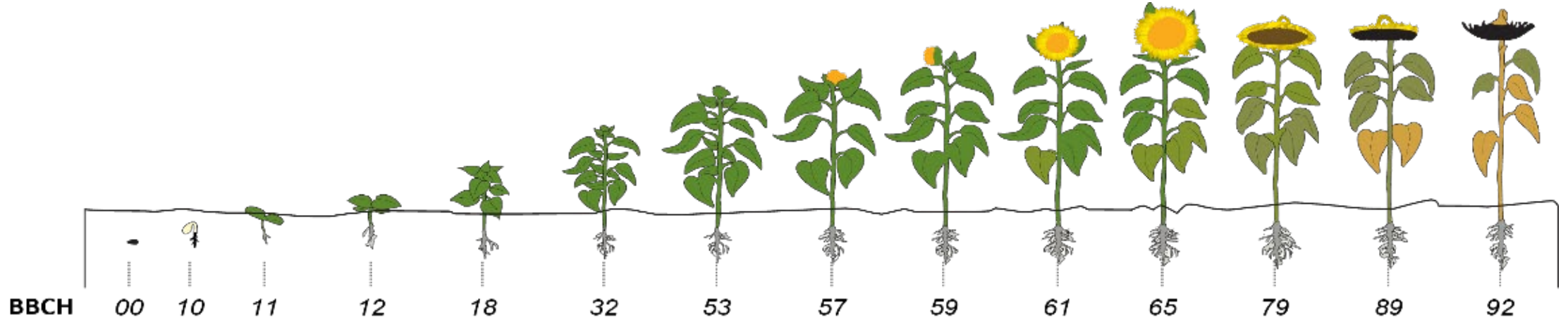
Sunflower crop development cycle

MARCH-APRIL

APRIL-JUNE

JUNE-AUGUST

AUGUST-OCTOBER



CROP ESTABLISHMENT

- Soil preparation
- Sowing

ABIOTIC & BIOTIC FACTORS MANAGEMENT

Abiotic factors:

- Water
- Fertilization
- Weather

Biotic factors:

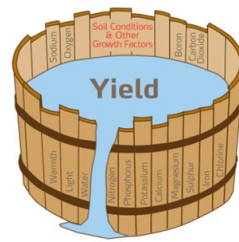
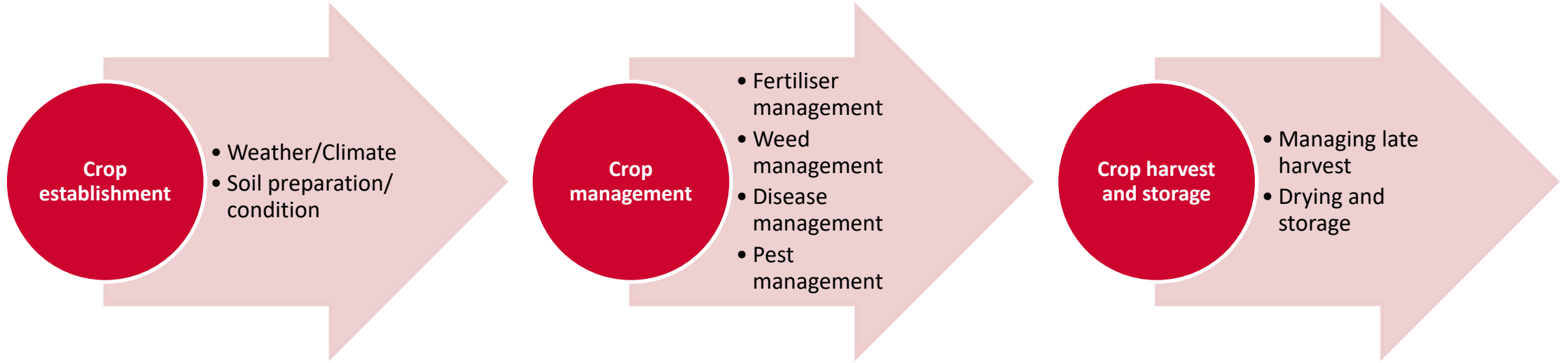
- Weeds
- Insects and animals
- Diseases

HARVEST

Photo and illustration credit: Limagrain Field Seeds 2024 –Sunflower crop guide



Main challenges for sunflower crop in UK





Crop establishment

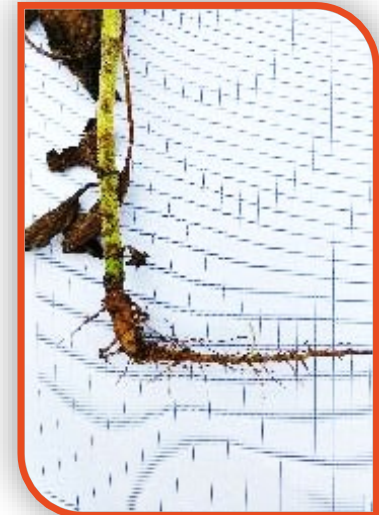
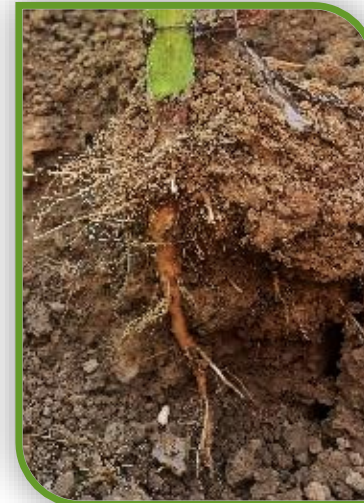
Climate/Weather

- Favourable weather window forecast for sowing for 5 to 7 days
- Soil temperatures $>8^{\circ}\text{C}$ at 5cm of sowing depth for several consecutive mornings
- No forecast of heavy rain before emergence (to avoid seed decay and capping)



Soil preparation

- Ideally well dried soil and fine tilth on surface but good texture in depth
- Sunflowers don't root well in compacted soils
- Avoid big clods (also to lower risk of slugs)

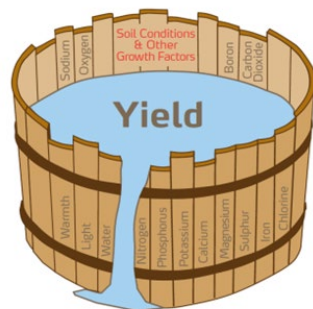




Crop management

Fertiliser management

- In the UK, the sunflower crop is considered a low input crop
- The crop needs N, P, K, and Bo mainly
- Deficiencies of all or some of these nutrients can have effects on yield, plant health, flowering, fertility, and lodging



Weed management

- Sunflowers as a crop don't stand competition very well especially when the crop is emerging
- Use rotation as a first measure
- Apply a weed control strategy that includes mechanical hoeing, pre-emergence herbicide and post emergence herbicide with a broad-spectrum efficacy
- Clearfield (mainly for control of broomrape) and Express hybrids available in Europe





Crop management

Disease management

- Most common sunflower crop diseases are Downey Mildew, Sclerotinia sclerotiorum, Phoma, Verticillium, Botrytis cinerea
- Disease control strategy will include rotation, using disease tolerant/resistant varieties and using appropriate fungicide



Pest management

- Main pests that affect the crop are slugs, wireworm, birds, rabbits and deer
- Use rotation and IPM as methods of control
- Slug pellets, bangers, scarecrows





Crop harvest and storage

Managing late harvest

- Harvest planning and anticipation – choosing early varieties, field choice, planning around combining
- Consider losses due to harvesting equipment
- Harvest fields at optimal crop stage- challenge in the UK due to weather patterns in October
- Grain sampling to evaluate moisture content
- Crop moisture standard at 9%- very hard to achieve in UK conditions- crops generally harvested at high moisture then dried

Crop storage

- Due to high moisture content at harvest, most crops need to be dried
- Pay high attention to the drying process as it is an oil crop and potentially very dangerous
- Always consider ventilation during storage





Limagrain Europe – Sunflower breeding

European Breeding Since 1983

1983 First Crosses Made



1999 Programme expands into several European Countries



2005 1st High-oleic and 1st Clearfield varieties



2013 & 2016 Clearfield Plus and SUNE0 (resistance to broomrape)



2018 & 2020 Multigene resistance to broomrape & mildew

Source: Internal Limagrain
Field Seeds Europe Territory





Limagrain UK – Sunflower varieties

2024

- We currently have 2 varieties
 - LG50268- very early, High Oleic variety, short type with good standing
 - LG5377- very early, Linoleic variety, good disease and standing
 - Have completed 3rd year in NL trials (second year in NL the trial was not harvested)





Limagrain UK – Sunflower crop

- There are more farmers interested in growing sunflowers for combining & forage for biogas





Thank you for your attention!